UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

22434 7590 12/24/2009

Weaver Austin Villeneuve & Sampson LLP
P.O. BOX 70250
OAKLAND, CA 94612-0250

EXAMINER	
WONG, BLANCHE	
ART UNIT	PAPER NUMBER
2476	

DATE MAILED: 12/24/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/600,893	06/19/2003	Mahadev Somasundaram	CISCP340/258344	6796

TITLE OF INVENTION: APPARATUS AND METHODS FOR HANDLING SHARED SERVICES THROUGH VIRTUAL ROUTE FORWARDING(VRF) -AWARE- NAT

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1510	$300	$0	$1810	03/24/2010

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

22434 7590 12/24/2009

Weaver Austin Villeneuve & Sampson LLP
P.O. BOX 70250
OAKLAND, CA 94612-0250

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/600,893	06/19/2003	Mahadev Somasundaram	CISCP340/258344	6796

TITLE OF INVENTION: APPARATUS AND METHODS FOR HANDLING SHARED SERVICES THROUGH VIRTUAL ROUTE FORWARDING(VRF) -AWARE- NAT

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1510	$300	$0	$1810	03/24/2010

EXAMINER	ART UNIT	CLASS-SUBCLASS
WONG, BLANCHE	2476	370-389000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

☐ Issue Fee

☐ Publication Fee (No small entity discount permitted)

☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**

☐ A check is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/600,893	06/19/2003	Mahadev Somasundaram	CISCP340/258344	6796

22434 7590 12/24/2009

Weaver Austin Villeneuve & Sampson LLP
P.O. BOX 70250
OAKLAND, CA 94612-0250

EXAMINER	
WONG, BLANCHE	
ART UNIT	PAPER NUMBER
2476	

DATE MAILED: 12/24/2009

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 878 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 878 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability	Application No.	Applicant(s)	
	10/600,893	SOMASUNDARAM, MAHADEV	
	Examiner	Art Unit	
	BLANCHE WONG	2476	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *Amendment F dated September 8, 2009*.

2. ☒ The allowed claim(s) is/are *1-8,10-16 and 18-26 (renumbered 1-24 respectively)*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/Ayaz R. Sheikh/
Supervisory Patent Examiner, Art Unit 2476

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Elise R. Heilbrunn (Reg No. 42,649) on December 17, 2009.

The application has been amended as follows:

1. (Currently Amended) In a network device for routing a packet, a method ~~of performing Network Address Translation~~, comprising:

maintaining a plurality of routing tables, each of a plurality of virtual private networks being associated with a different one of the plurality of routing tables;

receiving a packet, the packet including an IP source address and an IP destination address, the packet further including information indicating one of the plurality of routing tables to route the packet, the information identifying one of the plurality of virtual private networks;

performing Network Address Translation on the packet using a translation table to generate a translated packet;

identifying one of the plurality of routing tables to route the translated packet using the information indicating one of the plurality of routing tables to route the packet such that one of the plurality of routing tables corresponding to the one of the plurality of virtual private networks is identified;

identifying an entry in the identified one of the plurality of routing tables using the IP destination address;

routing the translated packet using the identified routing table entry;

receiving a default route to a network device providing one or more shared services, the default route to the network device providing one or more shared services being advertised by the network device providing one or more shared services, wherein each of the shared services is available to each of the plurality of virtual private networks; and

updating each of the plurality of routing tables to include the default route, thereby enabling the plurality of virtual private networks to access the shared services via the default route that is included in each of the plurality of routing tables.

2. (Previously Presented) The method as recited in claim 1, wherein each of the plurality of virtual private networks is associated with a different customer.

3. (Original) The method as recited in claim 1, wherein the network device is associated with an ingress interface of a service provider network.

4. (Original) The method as recited in claim 1, wherein the network device is associated with an egress interface of a service provider network.

5. (Original) The method as recited in claim 1, wherein the network device is associated with a service provider network.

6. (Previously Presented) The method as recited in claim 1, wherein performing Network Address Translation on the packet comprises:

translating the IP source address from a private address to a public address when the packet is received from a network device in a private network.

7. (Previously Presented) The method as recited in claim 1, wherein performing Network Address Translation on the packet comprises:

translating the IP destination address from a public address to a private address when the packet is received from a network device in a public network.

8. (Previously Presented) The method as recited in claim 7, wherein the network device in the public network provides one or more services to each of the plurality of virtual private networks.

9. (Cancelled)

10. (Previously Presented) The method as recited in claim 1, wherein the packet includes an MPLS tag identifying the one of the plurality of virtual private networks, and wherein identifying one of the plurality of routing tables comprises:

ascertaining the one of the plurality of virtual private networks from the Multi Protocol Label Switching tag; and

identifying the one of the plurality of routing tables associated with the ascertained one of the virtual private networks.

11. (Previously Presented) The method as recited in claim 10, wherein the Multi Protocol Label Switching tag further identifies the network device responsible for performing Network Address Translation and routing the packet.

12. (Currently Amended) In a network device for routing a packet, a method ~~of performing Network Address Translation~~, comprising:

maintaining a plurality of routing tables, each of a plurality of virtual private networks being associated with a different one of the plurality of routing tables;

receiving a packet, the packet including an IP source address and an IP destination address, and a Multi Protocol Label Switching tag identifying the one of the plurality of virtual private networks, the packet further including information indicating one of the plurality of routing tables to route the packet, the information identifying one of the plurality of virtual private networks;

ascertaining one of the plurality of virtual private networks from the Multi Protocol Label Switching tag;

identifying an entry in a translation table including the IP source address, the IP destination address, and a virtual private network identifier identifying the ascertained one of the virtual private networks;

performing Network Address Translation on the packet using the entry in the translation table to generate a translated packet;

identifying one of the plurality of routing tables to route the translated packet using the information indicating one of the plurality of routing tables to route the packet such that one of the plurality of routing tables corresponding to the one of the plurality of virtual private networks is identified;

identifying an entry in the identified one of the plurality of routing tables using the IP destination address; and

routing the translated packet using the identified routing table entry~~;~~

~~wherein the packet further includes an Multi Protocol Label Switching tag identifying the one of the plurality of virtual private networks, and wherein performing Network Address Translation on the packet comprises:~~

~~ascertaining the one of the plurality of virtual private networks from the Multi Protocol Label Switching tag;~~

~~identifying an entry in a translation table including the IP source address, the IP destination address, and a virtual private network identifier identifying the ascertained one of the virtual private networks; and~~

~~performing Network Address Translation on the packet using the entry in the translation tab~~le.

13. (Previously Presented) The method as recited in claim 12, wherein identifying one of the plurality of routing tables to route the packet comprises:

identifying the one of the plurality of routing tables from the entry in the translation table.

14. (Currently Amended) In a network device for routing a packet, a method ~~of performing Network Address Translation~~, comprising:

maintaining a plurality of sets of routing information, each of a plurality of virtual private networks being associated with a different one of the plurality of sets of routing information;

receiving a packet, the packet including an IP source address and an IP destination address, the packet further including information indicating one of the plurality of sets of routing information to route the packet, the information identifying one of the plurality of virtual private networks;

performing Network Address Translation on the packet using a translation table to generate a translated packet;

identifying an entry in one of the plurality of sets of routing information using the IP destination address and the information indicating one of the plurality of sets of routing information to route the packet such that one of the plurality of sets of routing information corresponding to the one of the plurality of virtual private networks is identified;

routing the translated packet using the identified entry;

receiving a default route to a network device providing one or more shared services, the default route to the network device providing one or more shared services being advertised by the network device providing one or more shared services, wherein each of the shared services is available to each of the plurality of virtual private networks; and

updating the plurality of sets of routing information to include the default route, wherein each of the plurality of sets of routing information corresponding to each of the plurality of virtual private networks is stored in one or more routing tables, thereby updating the one or more routing tables associated with the plurality of virtual private networks to include the default route to the network device providing one or more shared services available to each of the plurality of virtual private networks, enabling the plurality of virtual private networks to access the shared services via the default route that is included in each of the plurality of sets of routing information.

15. (Previously Presented) The method as recited in claim 14, wherein each of the plurality of sets of routing information corresponding to each of the plurality of virtual private networks is stored in a separate routing table.

16. (Previously Presented) The method as recited in claim 14, wherein each of the plurality of sets of routing information corresponding to each of the plurality of virtual private networks is stored in a single routing table, wherein each entry in the routing table includes a VPN identifier identifying the corresponding one of the plurality of virtual private networks.

17. (Cancelled)

18. (Previously Presented) The method as recited in claim 14, wherein updating the plurality of sets of routing information comprises:

updating a single routing table to include the default route.

19. (Previously Presented) The method as recited in claim 18, wherein the single routing table is dedicated to storing the default route to shared services available to each of the plurality of virtual private networks.

20. (Previously Presented) The method as recited in claim 18, wherein the single routing table stores the plurality of sets of routing information.

21. (Previously Presented) The method as recited in claim 14, wherein updating the plurality of sets of routing information comprises updating a plurality of routing tables to include the default route, each of the plurality of routing tables being associated with a different one of the plurality of virtual private networks.

22. (Currently Amended) A computer-readable medium storing thereon computer-readable instructions for routing a packet ~~performing Network Address Translation~~ in a network device, comprising:

instructions for maintaining a plurality of routing tables, each of a plurality of virtual private networks being associated with a different one of the plurality of routing tables;

instructions for processing a packet that has been received, the packet including an IP source address and an IP destination address, the packet further including information indicating

one of the plurality of routing tables to route the packet, the information identifying one of the plurality of virtual private networks;

instructions for performing Network Address Translation on the packet using a translation table to generate a translated packet;

instructions for identifying one of the plurality of routing tables to route the translated packet using the information indicating one of the plurality of routing tables to route the packet such that one of the plurality of routing tables corresponding to the one of the plurality of virtual private networks is identified;

instructions for identifying an entry in the identified one of the plurality of routing tables using the IP destination address;

instructions for routing the translated packet using the identified routing table entry;

~~receiving a default route to a network device providing one or more shared services, the default route to the network device providing one or more shared services being advertised by the network device providing one or more shared services, wherein each of the shared services is available to each of the plurality of virtual private networks;~~ and

instructions for updating each of the plurality of routing tables to include ~~the~~ a default route to a network device providing one or more shared services, the default route to the network device providing one or more shared services being advertised by the network device providing one or more shared services, wherein each of the shared services is available to each of the plurality of virtual private networks, thereby enabling the plurality of virtual private networks to access the shared services via the default route that is included in each of the plurality of routing tables.

23. (Currently Amended) An apparatus ~~A network device adapted for performing Network Address Translation~~, comprising:

means for maintaining a plurality of routing tables, each of a plurality of virtual private networks being associated with a different one of the plurality of routing tables;

means for receiving a packet, the packet including an IP source address and an IP destination address, the packet further including information indicating one of the plurality of routing tables to route the packet, the information identifying one of the plurality of virtual private networks;

means for performing Network Address Translation on the packet using a translation table to generate a translated packet;

means for identifying one of the plurality of routing tables to route the translated packet using the information indicating one of the plurality of routing tables to route the packet such that one of the plurality of routing tables corresponding to the one of the plurality of virtual private networks is identified;

means for identifying an entry in the identified one of the plurality of routing tables using the IP destination address;

means for routing the translated packet using the identified routing table entry;

means for receiving a default route to a network device providing one or more shared services, the default route to the network device providing one or more shared services being advertised by the network device providing one or more shared services, wherein each of the shared services is available to each of the plurality of virtual private networks; and

means for updating each of the plurality of routing tables to include the default route, thereby enabling the plurality of virtual private networks to access the shared services via the default route that is included in each of the plurality of routing tables.

24. (Currently Amended) A network device ~~adapted for performing Network Address Translation~~, comprising:

a processor; and

a memory, at least one of the processor or the memory being adapted for:

maintaining a plurality of routing tables, each of a plurality of virtual private networks being associated with a different one of the plurality of routing tables;

receiving a packet, the packet including an IP source address and an IP destination address, the packet further including information indicating one of the plurality of routing tables to route the packet, the information identifying one of the plurality of virtual private networks;

performing Network Address Translation on the packet using a translation table to generate a translated packet;

identifying one of the plurality of routing tables to route the translated packet using the information indicating one of the plurality of routing tables to route the packet such that one of the plurality of routing tables corresponding to the one of the plurality of virtual private networks is identified;

identifying an entry in the identified one of the plurality of routing tables using the IP destination address;

routing the translated packet using the identified routing table entry;

receiving a default route to a network device providing one or more shared services, the default route to the network device providing one or more shared services being advertised by the network device providing one or more shared services, wherein each of the shared services is available to each of the plurality of virtual private networks; and

updating each of the plurality of routing tables to include the default route, thereby enabling the plurality of virtual private networks to access the shared services via the default route that is included in each of the plurality of routing tables.

25. (Currently Amended) An apparatus, comprising:

a processor; and

a memory, at least one of the processor or the memory being adapted for:

maintaining a plurality of routing tables, each of a plurality of virtual private networks being associated with a different one of the plurality of routing tables;

receiving a packet, the packet including an IP source address and an IP destination address, and a Multi Protocol Label Switching tag identifying the one of the plurality of virtual private networks, the packet further including information indicating one of the plurality of routing tables to route the packet, the information identifying one of the plurality of virtual private networks;

ascertaining one of the plurality of virtual private networks from the Multi Protocol Label Switching tag;

identifying an entry in a translation table including the IP source address, the IP destination address, and a virtual private network identifier identifying the ascertained one of the virtual private networks;

performing Network Address Translation on the packet using the entry in the translation table to generate a translated packet;

identifying one of the plurality of routing tables to route the translated packet using the information indicating one of the plurality of routing tables to route the packet such that one of the plurality of routing tables corresponding to the one of the plurality of virtual private networks is identified;

identifying an entry in the identified one of the plurality of routing tables using the IP destination address; and

routing the translated packet using the identified routing table entry;

~~wherein the packet further includes an Multi Protocol Label Switching tag identifying the one of the plurality of virtual private networks, and wherein performing Network Address Translation on the packet comprises:~~

~~ascertaining the one of the plurality of virtual private networks from the Multi Protocol Label Switching tag;~~

~~identifying an entry in a translation table including the IP source address, the IP destination address, and a virtual private network identifier identifying the ascertained one of the virtual private networks; and~~

~~performing Network Address Translation on the packet using the entry in the translation table~~.

26. (Previously Presented) The apparatus as recited in claim 25, wherein identifying one of the plurality of routing tables to route the packet comprises:

identifying the one of the plurality of routing tables from the entry in the translation table.

2. The following is an examiner's statement of reasons for allowance:

With regard to claims 1 and 22-24, the prior art of record fails to anticipate or make obvious "... maintaining a plurality of routing tables, each of a plurality of virtual private networks being associated with a different one of the plurality of routing tables;

receiving a packet, the packet including ... an IP destination address, the packet further including information indicating one of the plurality of routing tables to route the packet, the information identifying one of the plurality of virtual private networks;

performing Network Address Translation on the packet using a translation table to generate a translated packet;

identifying one of the plurality of routing tables to route the translated packet using the information indicating one of the plurality of routing tables to route the packet such that one of the plurality of routing tables corresponding to the one of the plurality of virtual private networks is identified;

identifying an entry in the identified one of the plurality of routing tables using the IP destination address;

routing the translated packet using the identified routing table entry; …."

With regard to claims 12 and 25, the prior art of record fails to anticipate or make obvious "... maintaining a plurality of routing tables, each of a plurality of virtual private networks being associated with a different one of the plurality of routing tables;

receiving a packet, the packet including ... an IP destination address, and a MPLS tag identifying the one of the plurality of virtual private networks, the packet further including information indicating one of the plurality of routing tables to route the packet, the information identifying one of the plurality of virtual private networks;

ascertaining one of the plurality of virtual private networks from the MPLS tag;

identifying an entry in a translation table ... identifying the ascertained one of the virtual private networks;

performing Network Address Translation on the packet using the entry in the translation table to generate a translated packet;

identifying one of the plurality of routing tables to route the translated packet using the information indicating one of the plurality of routing tables to route the packet such that one of the plurality of routing tables corresponding to the one of the plurality of virtual private networks is identified;

identifying an entry in the identified one of the plurality of routing tables using the IP destination address;

routing the translated packet using the identified routing table entry; ...."

With regard to claim 14, the prior art of record fails to anticipate or make obvious "... maintaining a plurality of sets of routing information, each of a plurality of virtual private networks being associated with a different one of the plurality of routing tables;

receiving a packet, the packet including ... an IP destination address, the packet further including information indicating one of the plurality of sets of routing information to route the packet, the information identifying one of the plurality of virtual private networks;

performing Network Address Translation on the packet using a translation table to generate a translated packet;

identifying an entry in one of the plurality of sets of routing information using the IP destination address and the information indicating one of the plurality of sets of routing information to route the packet such that one of the plurality of sets of routing information corresponding to the one of the plurality of virtual private networks is identified;

routing the translated packet using the identified entry; ...."

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BLANCHE WONG whose telephone number is (571)272-3177. The examiner can normally be reached on Monday through Friday, 830am to 530pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on 571-272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Blanche Wong/
Examiner, Art Unit 2476
December 17, 2009

/Ayaz R. Sheikh/
Supervisory Patent Examiner, Art Unit 2476